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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:
Rawson et al.

Application No: 09/432,883

Filed: November 2, 1999

Title: System Method and Network For Providing High Speed Remote Access From Any Location Connected by a Local Loop to a Central Office

Atty. Dkt. No. CVAD-0013

Examiner: Nguyen, Phuongchau Ba

Art Unit: 2665

CERTIFICATE OF MAILING

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Jung-hua Kuo

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BRIEF ON APPEAL

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Sir:

This is an Appeal from the final rejection of claims 1-21 in the above-referenced patent application. In accordance with 37 C.F.R. §1.192, this Brief, along with the Appendix, is filed in triplicate and is accompanied by the required fee.

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I. Real Party In Interest

The real party in interest is Covad Communications Group, Inc. The subject patent application was assigned from appellants to Covad Communications Group, Inc. on June 10, 1998. The subject patent application is a continuation of US App. No. 09/252,354 filed February 17, 1999, now US Pat. No. 6,028, 867, which is in turn a continuation of US App. No. 09/098,020 filed June 15, 1998, now abandoned. The assignment for US App. No. 09/098,020 is recorded in the U.S. Patent and Trademark Office at Reel 9454, Frame 0934.

II. Related Appeals and Interferences

There are currently no known appeals or interferences which may directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

All claims 1-21 are as originally filed in the preliminary amendment and have not been amended.

IV. Status of Amendments

No amendments to the claims were filed subsequent to the final rejection. Thus, the appeal is being taken on the basis of claims 1-21 as finally rejected, as presented in Appendix A submitted herewith.

V. Summary of Inventions

The inventions are generally directly to telecommunication networks (independent claims 1 and 10 and claims depending therefrom) and methods (independent claim 15 and the claims dependent therefrom) for providing high speed remote access from a plurality of locations to a plurality of remote targets, in which each of the locations is connected to a central office by a local loop. The telecommunications network may include an access multiplexor having both ISDN digital subscriber line (IDSL) interfaces for interfacing with any of the local loops using an IDSL technology supporting a bandwidth of 128 or 144 Kbps as well as another (non-IDSL) DSL

interfaces for interfacing with at least some of the local loops using another DSL technology supporting bandwidth greater than 128 or 144 Kbps. The IDSL interfaces and the another interfaces being designed to receive packets from the locations on the local loops, each of the packets being destined to one of the remote targets. A data switch can be coupled to one of the remote targets by a bandwidth pipe for receiving the packets from the access multiplexor and delivering the packets to the remote targets using the bandwidth pipe irrespective of whether each packet is received on the IDSL or the another interface of the access multiplexor. Thus, the IDSL interfaces of the access multiplexor allow the telecommunication network to provide a minimum bandwidth of 128 Kbps or 144 Kbps to any of the locations while the other (non-IDSL) DSL interfaces of the access multiplexor enable the telecommunication network to provide higher bandwidth to some locations.

The method for providing high speed remote access from a plurality of locations to a plurality of remote targets may generally include locating an access multiplexor in a central office that includes IDSL interfaces for interfacing with any of the local loops using an IDSL technology supporting a bandwidth of 128 Kbps or 144 Kbps as well as another (non-IDSL) interfaces for interfacing with at least some of the local loops using another DSL technology supporting a bandwidth greater than 128 or 144 Kbps. The method also includes receiving packets from the locations on the local loops, each packet being destined to one of the remote targets, providing a data switch to receive the packets from the access multiplexor, transferring the packets to the data switch, and delivering the packets to the one of remote targets using a shared bandwidth pipe irrespective of whether each packet is received using IDSL or another DSL technology such that the IDSL interfaces allow the method to provide a minimum bandwidth of 128 or 144 Kbps to any of the locations and the another (non-IDSL) interfaces enable the method to optionally provide higher bandwidth to some locations.

VI. Issues

In the final rejection, the Examiner rejected claims 1-21 under 35 U.S.C. §103(a) as being unpatentable over Batruni, US Pat. No. 6,215,785 (claims 1-4, 6, 8, 10-13, 15-17 and 20-21), over Batruni in view of Laubach, US Pat. No. 6,081,533 (claims 5, 14, and 18) and over Batruni in view of Araujo, US Pat. No. 6,097,720 (claims 7, 9, and 19).

Accordingly, the issues on appeal is whether claims 1-21 are unpatentable over Batruni, Batruni in view of Laubach and Batruni in view of Araujo.

VII. Grouping of Claims

Claims 1-21 stand or fall together.

VIII. Argument

A. Introduction

The inventions are generally directly to telecommunication networks (independent claims 1 and 10 and claims depending therefrom) and methods (independent claim 15 and the claims dependent therefrom) for providing high speed remote access from a plurality of locations to a plurality of remote targets, in which each location is connected to a central office by a local loop. An access multiplexor has both ISDN digital subscriber line (IDSL) interfaces for interfacing with any of the local loops using IDSL technology supporting a bandwidth of 128 or 144 Kbps as well as another (non-IDSL) DSL interfaces for interfacing with at least some of the local loops using another (non-IDSL) DSL technology supporting bandwidth greater than 128 or 144 Kbps.

A data switch receives packets from the two types of interfaces, i.e., IDSL and non-IDSL, of the access multiplexor and delivers the packets to the remote targets irrespective of whether the packet is received on the IDSL or the non-IDSL interface of the access multiplexor. Thus, the IDSL interfaces of the access multiplexor allow the telecommunication network to provide a minimum bandwidth of 128 Kbps or 144 Kbps to any of the locations while the non-IDSL interfaces of the access multiplexor enable the telecommunication network to provide higher bandwidth to some locations.

B. Claims 1-21 are Patentable Over Batruni

Claims 1-4, 6, 8, 10-13, 15-17 and 20-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Batruni. Of these claims, claims 1, 10 and 15 are independent claims.

Independent claim 1 generally recites a telecommunications network having an access multiplexor and a data switch. The access multiplexor includes IDSL interfaces as well as

another (non-IDSL) DSL interfaces. The data switch receives data packets and delivers the data to a remote target irrespective of whether the packet is received on the IDSL or the another (non-IDSL) DSL interface. The telecommunications network, by having both IDSL and other DSL interfaces, provides a minimum bandwidth of 128 Kbps or 144 Kbps to any location and a higher bandwidth to some of the locations.

In contrast, Batruni exclusively describes *ADSL (Asymmetric DSL)* interfaces. While Batruni mentions IDSL in his background section, such mention, if anything, actually *teaches away* from using IDSL in Batruni's own ADSL network. (See, for example, col. 2, lines 30-36, "In general, an IDSL connection is considered to be sufficient to transfer voice data between TT [touch tone] phones because the volume of data transfer is relatively low. However, in order to transfer data relating to the Internet, e.g., World Wide Web pages and video-on-demand data, an ADSL connection is typically preferred over an IDSL connection.").

Batruni is devoid of any mention of a combination of both IDSL and another (non-IDSL) DSL technology. Batruni expressly describes his invention in terms of ADSL technology and utilizes **ADSL** switch 316 that may include **ADSL** cards (see, for example, col. 7, lines 1-4). Batruni's network provides *only* ADSL connections such that Batruni's network would not be able to provide high bandwidth connections to those locations do not meet the requirements for and thus are unable to support a ADSL connection (e.g., the remote location may be more than 3 miles from a central office and/or the underlying local loop between the remote location and the central office may not have a metallic path end-to-end).

Batruni mentions that the ADSL data rate may vary and "may be up to approximately 8 Mbps, as for example in the range of approximately 6 Mbps to 8 Mbps, or in the range of approximately 128 Kbps to approximately 1.544 Mbps." (Col. 7, lines 55-60). In particular, Batruni notes that the data rate may vary "depending upon factors including the number of customers associated with central office 308." (Col. 7, lines 51-54). Thus, even if Batruni were transferring at a data rate of 128 Kbps, Batruni is using **ADSL, not IDSL**, as recited in each of independent claims 1, 10 and 15. Indeed, Batruni makes no mention of employing IDSL technology in his network. Thus, Batruni does not and cannot render the claimed inventions obvious.

With respect to the Examiner's contention that the recitation of IDSL is merely a recitation of intended use, Applicants note that claim 1, for example, recites that the access multiplexor include the structural elements of a plurality of *IDSL interfaces* and other interfaces for interfacing with another DSL technology at a greater bandwidth. The IDSL interfaces are positive structural elements of the telecommunications network of claim 1 as is the access multiplexor. Providing both IDSL interfaces and non-IDSL interfaces enables a service provider to provide high speed remote access to any location connected to a central office, not just those that meet the requirements for ADSL *as is the case with Batruni.* For example, some remote locations cannot support ADSL as the remote location may be more than 3 miles from a central office and/or the underlying local loop between the remote location and the central office may not have a metallic path end-to-end. The network of claim 1 would thus enable a provider to provide high bandwidth connections to any remote location using either the IDSL or another DSL technology.

Furthermore, Batruni not only does not disclose or suggest the addition of IDSL interfaces to an access multiplexor but actually *teaches away* from adding IDSL interfaces to an access multiplexor. For example, Batruni states that while IDSL may be sufficient for telephone voice data because of the low volume of data transfer, data transfer relating to the Internet requires the higher bandwidth of an ADSL interface. (See, for example, col. 2, lines 30-36). Thus, Batruni does not suggest or disclose the inventions as claimed.

Dependent claims 5, 14, and 18 stand rejected jected under 35 U.S.C. §103(a) as being unpatentable over Batruni in view of Laubach. In addition, dependent claims 7, 9, and 19 tand rejected jected under 35 U.S.C. §103(a) as being unpatentable over Batruni in view of Araujo.

However, dependent claims 5, 7, 9, 14, 18, and 19 are allowable at least because the independent claims 1, 10 and 15 from which they variously depend are allowable as discussed above.

Reversal of the rejection of claims 1-21 is therefore requested.

C. Conclusion

In view of the foregoing, reversal of the rejection of claims 1-21 is requested.

In the unlikely event that the transmittal letter accompanying this document is separated from this document and the Patent Office determines that an Extension of Time under 37 CFR 1.136 and/or any other relief is required, Applicant hereby petitions for any required relief including Extensions of Time and/or any other relief and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 50-1217 (Order No. CVAD-0013).

Respectfully submitted,

Dated: June 22, 2004

By: _____

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Attached: Appendix A
(Copy of claims 1-21 involved in the subject Appeal; 5 pages)

Appendix A
Pending Claims 1-21

1. A telecommunication network for providing high speed remote access from a plurality of locations to a plurality of remote targets, wherein each of said plurality of locations is connected to a central office by a local loop, said telecommunication network comprising:

an access multiplexor having a plurality of ISDN digital subscriber loop (IDSL) interfaces for interfacing with any of said local loops using an IDSL technology, said IDSL technology supporting a bandwidth of 128 Kbps or 144 Kbps,

said access multiplexor having a plurality of another interfaces for interfacing with at least some of said local loops using another DSL technology, wherein said another DSL technology supports a bandwidth greater than 128 Kbps or 144 Kbps,

said plurality of IDSL interfaces and said plurality of another interfaces being designed to receive a plurality of packets from said plurality of locations on said plurality of local loops, each of said plurality of packets being destined to one of said plurality of remote targets; and

a data switch coupled to said one of said plurality of remote targets by a bandwidth pipe, said data switch receiving said plurality of packets from said access multiplexor and delivering the data bits in said plurality of packets to said one of said plurality of remote targets using said bandwidth pipe irrespective of whether each of said plurality of packets is received on said IDSL interface or said another interface,

wherein said plurality of IDSL interfaces allow said telecommunication network to provide a minimum bandwidth of 128 Kbps or 144 Kbps to any of said plurality of locations, and said plurality of another interfaces enables said telecommunication network to provide higher bandwidth to some locations.

2. The telecommunication network of claim 1, wherein said another DSL technology comprises Asymmetric DSL (ADSL) technology, and each of said another interfaces comprises an ADSL interface.

3. The telecommunication network of claim 2, wherein each of said IDSL interfaces receive said plurality of packets as a plurality of frames, and wherein each of said ADSL interfaces receive said plurality of packets as a plurality of cells.

4. The telecommunication network of claim 3, further comprising two bandwidth pipes connecting said data switch and said access multiplexor, wherein one of said two bandwidth pipes is used to transfer packets received on said ADSL interfaces and the other bandwidth pipe is used to transfer packets received on said DSL interfaces.

5. The telecommunication network of claim 3, wherein said data switch is designed to convert said plurality of cells into new frames and said plurality of frames into new cells, wherein the conversion allows said data switch to deliver all data destined for said one of said plurality of remote targets using said shared bandwidth pipe irrespective of whether each of said packets is received on said ADSL interfaces or said IDSL interfaces.

6. The telecommunication network of claim 1, wherein said telecommunication network further comprises a plurality of multiplexors, a plurality of data switches, and a plurality of access multiplexors to supports a large geographical area and large number of locations.

7. The telecommunication network of claim 1, wherein said access multiplexor is located within said central office and said data switch is located outside of said central office.

8. The telecommunication network of claim 1, wherein said local loops are dedicated for remote access.

9. The telecommunication network of claim 1, wherein said access multiplexor and said data switch are designed to transfer data from said plurality of remote targets to said plurality of locations.

10. A telecommunication network for providing high speed remote access from a plurality of locations to a plurality of remote targets, wherein each of said plurality of locations is connected to a central office by a local loop, said telecommunication network comprising;

receiving means located in a central office for receiving a plurality of packets from said plurality of locations on said local loops, each of said plurality of packets being destined to one of said plurality of remote targets, said receiving means including a plurality of ISDN digital subscriber loop (IDSL) interfaces for interfacing with any of said local loops using an IDSL technology, said IDSL technology supporting a bandwidth of 128 Kbps or 144 Kbps on a local loop connected by a corresponding IDSL interface, said receiving means having a plurality of another interfaces for interfacing with at least some of said local loops using another DSL technology, wherein said another DSL technology supports a bandwidth greater than 128 Kbps or 144 Kbps;

multiplexor means coupled to said receiving means for receiving the data received in said packets;

switching means coupled to said multiplexor means for receiving said data in said plurality of packets, said switching means delivering said data in said plurality of packets to said one of said plurality of remote targets using a shared bandwidth pipe irrespective of whether any of said plurality of packets is received using IDSL technology or said another DSL technology,

wherein said plurality of IDSL interfaces allow said telecommunication network to provide a minimum bandwidth of 128 Kbps or 144 Kbps to any of said plurality of locations, and said plurality of another interfaces enables said telecommunication network to optionally provide higher bandwidth to some locations.

11. The telecommunication network of claim 10, wherein said another DSL technology comprises Asymmetric DSL (ADSL) technology, and each of said another interfaces comprises an ADSL interface.

12. The telecommunication network of claim 11, wherein each of said IDSL interfaces receive said plurality of packets as a plurality of frames, and wherein each of said ADSL interfaces receive said plurality of packets as a plurality of cells.

13. The telecommunication network of claim 12, further comprising two bandwidth pipes connecting said switching means and said multiplexor means, wherein one of said two bandwidth pipes is used to transfer packets received on said ADSL interfaces and the other bandwidth pipe is used to transfer packets received on said IDSL interfaces.

14. The telecommunication network of claim 12, wherein said switching means is designed to convert said plurality of cells into new frames and said plurality of frames into new cells, wherein the conversion allows said switching means to deliver all data destined for said one of said plurality of remote targets using said shared bandwidth pipe irrespective of whether each of said packets is received on said ADSL interfaces or said DSL interfaces.

15. A method of providing high speed remote access from a plurality of locations to a plurality of remote targets, wherein each of said plurality of locations is connected to a central office by a local loop, said method comprising the steps of:

(a) locating an access multiplexor in a central office, wherein said access multiplexor includes a plurality of ISDN digital subscriber loop (IDSL) interfaces for interfacing with any of said local loops using an IDSL technology, said IDSL technology supporting a bandwidth of 128 Kbps or 144 Kbps, said access multiplexor having a plurality of another interfaces for interfacing with at least some of said local loops using another DSL technology, wherein said another DSL technology supports a bandwidth greater than 128 Kbps or 144 Kbps;

(b) receiving a plurality of packets from said plurality of locations on said plurality of local loops, each of said plurality of packets being destined to one of said plurality of remote targets;

(c) providing a data switch to receive said plurality of packets from said access multiplexor;

(d) transferring said plurality of packets to said data switch;

(e) delivering each data bit in said plurality of packets to said one of said plurality of remote targets using a shared bandwidth pipe irrespective of whether any of said plurality of packets is received using IDSL technology or said another DSL technology,

wherein said plurality of IDSL interfaces allows said method to provide a minimum bandwidth of 128 Kbps or 144 Kbps to any of said plurality of locations, and said plurality of another interfaces enables said method to optionally provide higher bandwidth to some locations.

16. The method of claim 15, wherein said another DSL technology comprises Asymmetric DSL (ADSL) technology, and each of said another interface comprises an ADSL interface, and wherein step (b) comprises the steps of:

(f) receiving some of said plurality of packets as a plurality of cells on said ADSL interfaces; and

(g) receiving some other of said plurality of packets as a plurality of frames on said IDSL interfaces wherein each of said IDSL interfaces receive said plurality of packets as a plurality of frames.

17. The method of claim 16, wherein steps (c) and (d) comprise the steps of:

providing two bandwidth pipes connecting said data switch and said access multiplexor,

transferring packets received on said ADSL interfaces on one of said two bandwidth pipes; and

transferring packets received on said IDSL interfaces using the other bandwidth pipe.

18. The method of claim 16, further comprising the step of converting said plurality of cells into new frames and said plurality of frames into new cells, wherein the conversion allows said data switch to deliver all data destined for said one of said plurality of remote targets using said shared bandwidth pipe irrespective of whether each of said packets is received on said ADSL interfaces or said IDSL interfaces.

19. The method of claim 15, further comprising the step of transferring data from said plurality of remote targets to said plurality of plurality locations to provide said high speed remote access.

20. The method of claim 15, further comprising the step of dedicating said local loops for remote access.

21. The telecommunication network of claim 1, wherein said access multiplexor and said data switch are provided as a single unit.